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ORIGINAL ARTICLE

The genus *Aclista* Förster, 1856 (Hymenoptera: Diapriidae) firstly recorded from China, with descriptions of three new species

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Abstract The genus *Aclista* Förster, 1856 (Hymenoptera: Diapriidae) from China is described for the first time, with descriptions and illustrations of three new species, *A. annula* **sp. nov.** and *A. capitata* **sp. nov.** from Yunnan, and *A. hirsuta* **sp. nov.** from Guangdong. A key for the identification of Chinese species is provided. All types are preserved in the Hymenopteran Collection of South China Agricultural University (SCAU).

Key words Diapriidae, Belytinae, *Aclista*, new species, China.

1 Introduction

Aclista Förster, 1856 belongs to the subfamily of Belytinae (Hymenoptera: Diapriidae). It is one of the most common genera of Diapriidae and distributes in all six zoogeographic regions. At present, 160 species of *Aclista* were known (Johnson, 1992; Buhl, 1996, 1997, 1998; Macek, 2005, 2007; Özdikmen, 2010; Rajmohana, 2006). Seven of them are recorded in Oriental Region: *A. albohirta* (Dodd, 1920) from Indonesia; *A. globosa* Rajmohana & Narendran, 2006, *A. leana* Rajmohana & Narendran, 2006 and *A. specka* Rajmohana & Narendran, 2006 from India; *A. philippinensis* (Kieffer, 1913), *A. soror* (Kieffer, 1914) and *A. zenobia* Buhl, 1998 from Philippines (Kieffer, 1913, 1914; Dodd, 1920; Buhl, 1998; Rajmohana & Narendran, 2006). The species of *Aclista* inhabiting in China have not been reported before this study. In 2015 we examined some specimens of this genus from Guangdong and Yunnan Provinces and discovered three new species described in this paper.

2 Materials and methods

Specimens were examined and described under a Zeiss Stemi 2000-CS stereomicroscope. All photos were taken with a digital camera (Cool SNAP) attached to the Zeiss Stemi 2000-CS stereomicroscope and processed by using Image-Pro Plus software.

Descriptions mainly follow the terminology used by Masner & García (2002) and Macek (2005, 2007). Measurements reported are relative, except for body length (head to abdominal tip, excluded antennae and ovipositor) and fore wing length.

In the descriptions, the following abbreviations were used:

A1, A2, A3, *etc.*—Antennal segments 1, 2, 3, *etc.*;

OOL—oculo-ocellar line, the shortest distance between a lateral ocellus and compound eye;

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POL—posterior ocellar line, the shortest distance between inner margins of two posterior ocelli;
T2—metasomal terga 2.

3 Taxonomy

Genus *Aclista* Förster, 1856 New record to China

Aclista Förster, 1856: 128; Cresson, 1887: 87; Ashmead, 1893: 347; Ashmead, 1902: 246; Kieffer, 1913: 172; Dodd, 1915: 389; Kieffer, 1916; 351; Muesebeck & Walkley, 1951: 685; Muesebeck & Walkley, 1956: 324; Nixon, 1957: 7; Muesebeck & Masner, 1967: 293; Kozlov, 1971: 14; Kozlov, 1978: 564; Muesebeck, 1979: 1130; Mani & Sharma, 1982: 218; Buhl, 1998: 41; Rajmohana, 2006: 14.
Type species: *Aclista scutellaris* (Thomson, 1859), designated by Muesebeck & Walkley (1951).

Diagnosis. Female antenna 14- or 15-segmented. Male antenna 14-segmented. Male A3 usually with strong emargination. Mandibles mostly long and sickle-shaped. Notauli complete. Scutellar pit suboval or rectangle. Postscutellum without process. Fore wing with closed radial cell. Petiole usually twice as long as wide. Gaster fusiform.

Biology. Some species were reared from dipterous larvae (Muesebeck, 1979; Ševčík, 2006)

Distribution. Worldwide.

Key to Chinese species of the genus *Aclista* Förster.

1. Antenna brown, with A9 and A10 pale yellow; A10–A14 as long as wide ..... ***A. annula* sp. nov.**
   Antenna fully brown; A10–A14 longer than wide 2
2. A1 distinctly longer than A2+A3; head in dorsal view distinctly wider than mesosoma; petiole 2.25× as long as middle width; apex of striation on T2 without ring of pubescence ..... ***A. capitata* sp. nov.**
   A1 slightly shorter than A2+A3; head in dorsal view as wide as mesosoma; petiole 1.33× as long as middle width; apex of striation on T2 with ring of pubescence ..... ***A. hirsuta* sp. nov.**

Aclista annula sp. nov. (Figs 1–3)

Material examined. Holotype ♀, China, Yunnan, Zhaotong, Huanghua, 7–9.X.2012, coll. Shiwen Yang, Sha3-201210047 (SCAU). Paratypes. 3♀, the same data as holotype, Cheng4-201209007, Hua3-201210029, Li3-201210148 (SCAU).

Description. Holotype. Female. Body length 3.6 mm. Fore wing length 2.7 mm.

Color. Body blackish-brown. Antennae brown, with A9 and A10 pale yellow. Legs and mandibles brown.

Head. Head in dorsal view 2.10× as wide as long, slightly wider than mesosoma (6.3 : 5.7); in frontal view subtriangular, with moderately prominent antennal sockets. Toruli separated from each other, without shallow cleft between them. Mandibles sickle-shaped and overlapping. Clypeus convex, lustrous with pubescence. Face lustrous, with pubescence, without facial furrow. Antenna 15-segmented, with dense pubescence. Scape slender, cylindrical, and bowed slightly. Relative ratio of length to width of antennal segments as follows: 6.0 : 1.0, 1.3 : 1.0, 3.2 : 1.0, 2.5 : 1.0, 2.0 : 1.0, 2.0 : 1.0, 2.0 : 1.0, 1.5 : 1.0, 1.5 : 1.0, 1.2 : 1.0, 1.0 : 1.0, 1.0 : 1.0, 1.0 : 1.0, 1.0 : 1.0, 1.6 : 0.9. Ocelli large. OOL : POL=2.5 : 2.0. Eye oval, with sparse pubescence, 1.60× as long as wide. Occipital carina complete.

Mesosoma. Mesosoma with dense pubescence. Pronotum broad, with antero-lateral corners angular. Mesoscutum convex. Notauli complete. Parapsidal line indistinct. Anterior scutellar pit large and trapezoidal, Axillar pits large and rounded, with tuft of pubescence inside. Scutellar disc with conical hump in middle. Dorsellum flat. Propodeum lustrous. Median keel of propodeum simple. Inner plicae of propodeum complete, ending in a prominent dentiform projection. Outer plicae turned outwards posteriorly, ending in a sharp tooth. Fore wing with parastigma 1.54× as long as marginal vein (2.0 : 1.3); radial cell closed, 1.75× as long as marginal vein (3.5 : 2.0).

Metesoma. Petiole subcylindrical, with distinct longitudinal rugosity; 1.61× as long as middle width (4.5 : 2.8). Gaster fusiform, tapering at a sharp point. T2 smooth and lustrous, widest portion almost in middle. T2 with median furrow extending to 0.25 of its length. Base of T2 with two lateral striations on either side of median furrow. T2 1.54× as long as wide (10.0 : 6.5). Pygidium longer than prepygium (3.0 : 2.0).

Male. Unknown.

Distribution. China (Yunnan).

Biology. Unknown.

Etymology. The specific name of the new species is referred to the pale yellow annular flagellums (A9 and A10) on the

Figures 1–3. *Aclista annula* **sp. nov.**, holotype. 1. Antenna. 2. Mesosoma and metasoma, dorsal view. 3. Fore wing.

brown antenna.

Remarks. The new species is similar to *A. zenobia* Buhl, 1998, but can be distinguished from the latter by following characteristics: antenna brown, with A9 and A10 pale yellow (antenna dark brown, with A8 slightly lighter, A9–A15 pale yellow in *A. zenobia*); A1 much longer than A2+A3 (slightly longer in *A. zenobia*); A3 3.20× as long as wide (5.00× in *A. zenobia*); radial cell 1.75× as long as marginal vein (2.50× in *A. zenobia*); and petiole 1.61× as long as middle width (2.30× in *A. zenobia*).

***Aclista capitata* sp. nov.** (Figs 4–6)

Material examined. Holotype ♀, China, Yunnan, Zhaotong, Huanghua, 7–9.X.2012, coll. Shiwen Yang, Hua3-

201210054 (SCAU). Paratypes. 10♀, same data as holotype, Hua1-201210065, Hua2-2012088055, Hua3-201209004, Hua3-201210011, Hua3-201208100, Hua4-201209005, Li5-201210117, Li5-201210121, Li5-201210133, Sha3-201210014 (SCAU).

Description. Holotype. Female. Body length 3.2 mm. Fore wing length 2.5 mm.

Color. Body blackish-brown. Antennae brown. Legs and mandibles brownish-yellow.

Figures 4–6. *Aclista capitata* **sp. nov.**, holotype. 4. Antenna. 5. Mesosoma and metasoma, dorsal view. 6. Fore wing.

Head. Head in dorsal view 2.20× as wide as long, wider than mesosoma (10.0 : 8.5); in frontal view subtriangular, with moderately prominent antennal sockets. Toruli separated from each other, with shallow cleft between them. Mandibles sickle-shaped and overlapping. Clypeus convex, lustrous with pubescence. Face lustrous, with pubescence, without facial furrow. Antenna 15-segmented, with dense pubescence. Scape slender, cylindrical, and bowed slightly. Relative ratio of length to width of antennal segments as follows: 5.2 : 1.0, 1.2 : 1.0, 3.3 : 0.8, 2.5 : 0.8, 2.0 : 0.8, 1.7 : 0.8, 1.5 : 0.8, 1.3 : 0.8, 1.3 : 0.8, 1.2 : 0.8, 1.2 : 0.8, 1.2 : 0.8, 1.2 : 0.8, 1.2 : 0.8, 2.0 : 0.8. Ocelli large. OOL : POL=2.0 : 1.5. Eye oval, with sparse pubescence, 1.60× as long as wide. Occipital carina complete.

Mesosoma. Mesosoma with dense pubescence. Pronotal collar distinct in dorsal view. Mesoscutum convex. Notauli complete. Parapsidal line indistinct. Anterior scutellar pit large and trapezoidal. Axillar pits large and rounded, with tuft of pubescence inside. Scutellar disc with conical hump in middle. Dorsellum flat. Propodeum lustrous. Median keel of propodeum simple. Inner plicae converging and not projecting posteriorly. Outer plicae turned outwards posteriorly, ending in a sharp tooth. Fore wing with parastigma 0.65× as long as marginal vein (1.5 : 2.3); radial cell closed, 2.39× as long as marginal vein (5.5 : 2.3).

Metesoma. Petiole subcylindrical, with indistinct and irregular longitudinal rugosity; 2.25× as long as middle width (4.5 : 2.0). Gaster fusiform, tapering at a sharp point. T2 smooth and lustrous, widest portion almost in middle. T2 with median furrow extending to 0.14 of its length. Base of T2 with two lateral striations on either side of median furrow. T2 1.41× as long as wide (10.0 : 7.1). Pygidium longer than prepygium (2.5 : 1.7).

Male. Unknown.

Distribution. China (Yunnan).

Biology. Unknown.

Etymology. The specific name of the new species is referred to its wide head, which is distinctly wider than mesosoma in dorsal view.

Remarks. The new species resembles *A. globosa* Rajmohana & Narendran, 2006, but can be distinguished from the latter by following characteristics: antenna filiform (gradually enlarged towards tip in *A. globosa*); A3 0.63× scape length (0.45× in *A. globosa*); A15 0.61× A3 length (1.50× in *A. globosa*); head distinctly transverse and distinctly wider than mesosoma in dorsal view (narrower in *A. globosa*); radial cell 2.39× as long as marginal vein (1.50× in *A. globosa*); and T2 with median furrow extending to 0.14 of its length (0.50 in *A. globosa*).

***Aclista hirsuta* sp. nov.** (Figs 7–9)

Material examined. Holotype ♀, China, Guangdong, Nanling National Nature Reserve, 4–6.VIII.2004, coll. Jingxian Liu & Liqiong Weng (SCAU).

Description. Holotype. Female. Body length 2.5 mm. Fore wing length 2.1 mm.

Color. Body blackish-brown. Antennae brown. Legs and mandibles brownish-yellow.

Head. Head in dorsal view 2.00× as wide as long, as wide as mesosoma; in frontal view subtriangular, with prominent antennal sockets. Toruli separated from each other, without shallow cleft between them. Mandibles sickle-shaped and overlapping. Clypeus convex, smooth and lustrous. Face lustrous, with pubescence, without facial furrow. Antenna 15-segmented, with dense pubescence. Scape slender, cylindrical, and bowed slightly. Relative ratio of length to width of antennal segments as follows: 3.8 : 0.8, 1.0 : 0.7, 3.0 : 0.5, 2.0 : 0.5, 1.5 : 0.5, 1.3 : 0.7, 1.2 : 0.8, 1.2 : 0.8, 1.2 : 0.8, 1.2 : 0.8, 1.0 : 0.8, 1.0 : 0.8, 1.0 : 0.8, 1.0 : 0.8, 1.5 : 0.7. Ocelli large. OOL : POL=1.2 : 1.0. Eye oval, with sparse pubescence, 1.30× as long as wide. Occipital carina complete.

Mesosoma. Mesosoma with sparse pubescence. Pronotal collar indistinct in dorsal view. Mesoscutum convex. Notauli complete. Parapsidal line slender and long. Anterior scutellar pit large and trapezoidal. Axillar pits large and rounded, with tuft of pubescence inside. Scutellar disc flat. Dorsellum flat. Propodeum lustrous. Median keel of propodeum simple. Inner plicae converging and not projecting posteriorly. Outer plicae turned outwards posteriorly, ending in a sharp tooth. Fore wing with parastigma 1.88× as long as marginal vein (1.5 : 0.8); radial cell closed, 3.38× as long as marginal vein (2.7 : 0.8).

Metesoma. Petiole subcylindrical, with indistinct and irregular longitudinal rugosity; 1.33× as long as middle width (2.0 : 1.5). Gaster fusiform, tapering at a sharp point. T2 smooth and lustrous, widest portion almost in middle. T2 with median furrow extending to 0.3 of its length. Base of T2 with two lateral striations on either side of median furrow; apex of all striation with ring of pubescence. T2 1.49× as long as wide (10 : 6.7). Pygidium shorter than prepygium (1.5 : 2.5).

Male. Unknown.

Distribution. China (Guangdong).

Biology. Unknown.

Figures 7–9. *Aclista hirsuta*, **sp. nov.**, holotype. 7. Antenna. 8. Head, mesosoma and metasoma, dorsal view. 9. Fore wing.

Etymology. The specific name of the new species is referred to the ring of pubescence on T2.

Remarks. This new species is closely related to *A. leana* Rajmohana & Narendran, 2006, but can be distinguished from the latter by following characteristics: A3 6.00× as long as wide, and 0.79× scape length (4.00× and 0.60× respectively in *A. leana*); A15 0.50× A3 length (0.66 in *A. leana*); pronotal collar indistinct in dorsal view (distinct in *A. leana*); fore wing with radial cell 3.38× as long as marginal vein (2.00× in *A. leana*); and petiole 1.33× as long as middle width (more than 2.00× in *A. leana*).

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